CLAIMS

1. A method of multiplexing channels, comprising:

a coding step of coding input data for each input channel;

a step of multiplexing said data which is coded;

a step of performing an interleaving process on said data which is multiplexed; and

a step of outputting said data on which said interleaving process is performed to a physical channel.

2. The method as claimed in claim 1, said interleaving process comprising the steps of:

writing data into an interleaver;

randomizing columns of said interleaver; and

reading data from said interleaver.

3. The method as claimed in claim 2, wherein the number of columns of said interleaver is an integral multiple of the number of slots of an output data frame.

a 4. The method as claimed in claim 2 ~~or 3~~, wherein the number of columns of said interleaver is 16 or 32.

a 5. The method as claimed in claim 2 ~~or 3~~, wherein the number of columns of said interleaver is 15 or 30.

a 6. The method as claimed in ~~one of claims 2-5~~ claim 2, wherein a pattern used for said randomizing is an interleave pattern suitable for a transmission line interleaver.

a 7. The method as claimed in ~~one of claims 1-6~~ claim 1, further comprising, after said coding step:

a step of performing another interleaving process; and

a step of segmenting data on which said

another interleaving process is performed.

8. A data multiplexer for multiplexing channels, comprising:

coding means for coding input data for each input channel;

multiplexing means for multiplexing said data which is coded;

an interleaver for performing an interleaving process on said data which is multiplexed; and

output means for outputting said data on which said interleaving process is performed to a physical channel.

9. The data multiplexer as claimed in claim 8, said interleaving process comprising the steps of:

writing data into said interleaver;

randomizing columns of said interleaver; and

reading data from said interleaver.

10. The data multiplexer as claimed in claim 9, wherein the number of columns of said interleaver is an integral multiple of the number of slots of an output data frame.

11. The data multiplexer as claimed in claim 9 ~~or 10~~, wherein the number of columns of said interleaver is 16 or 32.

12. The data multiplexer as claimed in claim 9 ~~or 10~~, wherein the number of columns of said interleaver is 15 or 30.

13. The data multiplexer as claimed in ~~one of claims 9-12~~ claim 9, wherein a pattern used for said randomizing is an interleave pattern suitable for a transmission line interleaver.

14. The data multiplexer as claimed in ~~one of claims 8-13~~ claim 8, further comprising:

another interleaver for performing another

interleaving process after said coding; and

segmenting means for segmenting data on which said another interleaving process is performed.

15. A data transmitting method which is used in combination with a data signal receive method comprising the steps of regenerating reference phase in each timing of modulated data signals on the basis of each pilot signal which indicates reference phase of modulation and demodulating said data signals, said data transmitting method comprising the steps of: sending said data signals burstly; configuring slots by placing said data signals between pilot signals; and sending said slots,

said data transmitting method further comprising:

an interleaving step of performing an interleaving process on said data signals;

a step of dividing data signals to be sent in a slot interval into a plurality of data blocks; and

a step of distributing said data blocks in said slot,

said interleaving step including a step of performing said interleaving process by using an interleaver in which the number of columns of said interleaver is twice as many as the number of slots in a frame of said data signals.

16. A data transmitting method which is used in combination with a data signal receive method comprising the steps of regenerating reference phase in each timing of modulated data signals on the basis of each pilot signal which indicates reference phase of modulation and demodulating said data signals, said data transmitting method comprising the steps of: sending said data signals burstly; configuring slots by

placing said data signals between pilot signals; and sending said slots,

said data transmitting method further comprising:

a coding step of coding data signals for each channel;

a step of multiplexing data signals for each channel;

an interleaving step of performing an interleaving process on said data signals which are multiplexed;

a step of dividing data signals to be sent in a slot interval into a plurality of data blocks; and

a step of distributing said data blocks in said slot,

said interleaving step comprising:

a step of writing data into an interleaver in which the number of columns of said interleaver is twice as many as the number of slots in a frame of said data signals;

a step of randomizing columns of said interleaver; and

a step of reading data from said interleaver.

17. The data transmitting method as claimed in claim 16, wherein said number of slots in a frame is 15 or 16.

18. The data transmitting method as claimed in claim 16 ~~or 17~~, further comprising the step of permuting columns of said interleaver partially after said randomizing.

19. The data transmitting method as claimed in claim 16 ~~or 17~~, wherein said step of randomizing columns is performed by using an interleaving pattern, which is suitable for transmission line interleaving, for performing

randomization of columns and for performing partial permutations of columns.

20. A data transmitter which is used in combination with a data signal receive apparatus which regenerates reference phase in each timing of modulated data signals on the basis of each pilot signal which indicates reference phase of modulation and demodulates said data signals, wherein said data transmitter sends said data signals burstly; configures slots by placing said data signals between pilot signals; and sends said slots,

said data transmitter comprising:

interleaving means for performing an interleaving process on said data signals;

means for dividing data signals to be sent in a slot interval into a plurality of data blocks; and

means for distributing said data blocks in said slot,

said interleaving means including an interleaver in which the number of columns of said interleaver is twice as many as the number of slots in a frame of said data signals.

21. A data transmitter which is used in combination with a data signal receive apparatus which regenerates reference phase in each timing of modulated data signals on the basis of each pilot signal which indicates reference phase of modulation and demodulates said data signals, wherein said data transmitter sends said data signals burstly; configures slots by placing said data signals between pilot signals; and sends said slots,

said data transmitter comprising:

coding means for coding data signals for each channel;

means for multiplexing data signals for each channel;

interleaving means for performing an interleaving process on said data signals which are multiplexed;

means for dividing data signals to be sent in a slot interval into a plurality of data blocks; and

means for distributing said data blocks in said slot,

wherein said interleaving means:

writes data into an interleaver in which the number of columns of said interleaver is twice as many as the number of slots in a frame of said data signals;

randomizes columns of said interleaver; and

reads data from said interleaver.

22. The data transmitter as claimed in claim 21, wherein said number of slots in a frame is 15 or 16.

23. The data transmitter as claimed in claim 21 ~~or 22~~, wherein columns of said interleaver are permuted partially after said columns are randomized.

24. The data transmitter as claimed in claim 21 ~~or 22~~, wherein, when said columns are randomized, an interleaving pattern, which is suitable for transmission line interleaving, for performing randomization of columns and for performing partial permutations of columns is used.